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University Examinations 2024/2025

SECOND YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT

CIA 5166: INFORMATION MANAGEMENT SYSTEM FOR SUPPLY CHAIN

DATE: JANUARY 2025 **TIME: 3 HOURS**

INSTRUCTIONS: *Answer question **one** and any other **three** questions*

QUESTION ONE (24 MARKS)

Read the following case study and then answer the questions that follow.

The Premier Automotive Services Limited (PAS) provides services to various companies in Pune for maintaining the transport fleet by the companies, for their use. Beside this, it runs petrol pumps and spare parts shop too. The vehicle maintained by the Premier Automotive Services are buses, trucks, and jeeps. The total strength of the Premier Automotive Services is around 300 vehicles. The services charged are of two types- fixed monthly for the routine maintenance and variable maintenance for other services like breakdown repairs, replacements, petrol or diesel consumed, etc, The company seeking the services from the PAS are satisfied if the vehicles are kept in good condition and down time is 2% of 25 days in a month.

The Premier Automotive Services finds difficulty in maintaining this service level even though a large staff and sufficient inventory of spare parts are available. The probability of the company is going down due to the low quality of service rendered to the customers. The

revenue earning departments of the Premier Automotive Services are the petrol pumps, the spare parts shop, the garages and the paint shops.

The Premier automotive services are supposed to keep the schedule of the various services, which are required for the vehicle to be in good condition. This calls upon the replacements of the critical spares, testing of various systems, and regular servicing, etc. It is observed that the vehicles are not called regularly and are not scheduled for such services properly. It is the customer who complains or initiates a job and then the same is carried out,

The companies for moving their employees use the buses. The buses are, therefore, to be kept in the good shapes so that no complaint is received. The trucks are used for a long distance delivery of finished goods. The jeeps are used for the local transport requirements. Since, all the vehicles are used for critical transport needs their availability become very Important. The turnaround cycle time of the vehicles, once received in the Premier Automotive Services is very important,

Each vehicle needs to be treated as one servicing unit, for its maintenance and planning. The planning caters for the general up-keep, the periodical replacements, based on some parameters, either the period or kilometer run, and the expected breakdown. In each of the vehicles the items like tires, batteries, dynamo and fan belt, etc- are required to be replaced on such a predetermined parameter. In order to service a vehicle, the PAS maintains a card for each of the vehicle, where the logic information is maintained. The information is like a model, the type, the owner and his residential or official address and so on. In addition to this, there is a general list of the tasks such as the base servicing, cleaning topping, etc., which are given for each of the vehicles within the stipulated period. It also maintains the history of the services carried out on the vehicle for future planning.

The owner of the vehicle requires yearly report on the task carried out, the expenses incurred and the forecast of the planned expenses based on the service required in the following year. The general procedure followed by the PAS, for offering various services, is as follows:
Each vehicle is scheduled for a show up every month for planning of the service tasks, When the vehicle arrives in the PAS, the service manager takes the card of the vehicle, checks the

kilometers run and decide the replacement of the various spare parts, the activities like tuning, overhauling, painting and the basic servicing. The time for the service is estimated and the driver is given a service order card, with the date for leaving the vehicle in the garage. The service order card also scheduled the activities in the garage in its order that each Service center knows where the vehicle is to go next for ifs servicing.

At each of the service center, a delivery note is written with the service order number mentioning the tasks carried out in terms of the skilled hours and replacement made. If the recommended replacements are not made for non-availability of spare parts it is recorded for the making •up of the next scheduled turn. if the replacement is critical, the vehicle is kept under a hold till the item is made available. Based on the delivery notes collected from each service center, a consolidated bill is made for the vehicle, which is handed over to driver for payment.

If the time spend by each vehicle is analyzed, it is observed that 30% of the time is spend on waiting. Beside, each vehicle is required to visit the service center twice for completing the task-once for getting the service order and again for actual maintenance work.

The management of the PAS wants a system, which will provide all the information so that the arrival of the vehicle can be planned to ensure the availability of all the garage facilities, spare parts and other services. The PAS would like to maintain vehicle log book on the computer which will provide such information instantaneously for planning and control of vehicle servicing.

i. State any five functions of the PAS system (5 marks)

ii. Identify the kinds of report that the system would produce to improve the service level to the customer (5 marks).

iii. Suggest any five types of management information systems for data and information processing that would improve the service quality and reduce turnaround time? (10 marks

(iv) Suggest the various technological resources required for the implementation of the information system in the organization (4 marks).

QUESTION TWO (12 MARKS)

a) Electronic Data Interchange Electronic Data Interchange (EDI) refers to the exchange of business records and documents in a default format from computer to computer. It presents the ability along with the practice of trading information between two organizations or businesses electronically as opposed to the standard kind of mail, courier and fax: Discuss the advantages of EDI- (6 marks)

b) Outline six examples of supply chain management information systems (6 Marks)

QUESTION THREE (12 MARKS)

a) Highlight the important decisions areas for design of supply chain information system (6 Marks)

b) Distinguish between e commerce and e-procurement (2 Marks)

c) Explain the benefits company would derive from implementing an e-procurement system (4 Marks)

QUESTION FOUR (12 MARKS)

a) Discuss the problems that supply chain management information systems would solve if implemented in an organization (6 Marks)

b) Model Driven Decision Support System (DSS) is a DSS that uses a model (quantitative) based on heuristics, optimization, simulation etc. for deriving solutions to problems. It has access to the models and has flexibility of changing the parameters –of the model, Real data or transactional data from databases of TPS is then passed through the model to arrive at the solution. The system is capable of producing different scenarios. Explain the three modern classification of DSS (6 marks)

QUESTION FIVE (12 MARKS)

a) Explain the steps in cost / benefit based evaluation (4 Marks).

b) Explain about recent trends in IS security threats (4 Marks),

c) Discuss about IS ethical and Social issues (4 Marks)